Chapter Four: Current and Projected Uses of the Study Area

Contents

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A. History of the Area

The earliest documented inhabitants of the Copper River basin area were Athapaskan Indians, primarily consisting of the Tatlatan and Ahtna groups. The large number of archaeological sites discovered throughout the area indicate that the Native tribes were probably sparsely distributed and mobile (AHTNA, 1973). (See Chapter 5: Reasonably Foreseeable Cumulative Effects, regarding information on archaeological sites within the study area.) Although this region was virtually isolated from the rest of the world, there is evidence that trade and services were conducted on a barter system between their own tribes and tribes from other areas (USBIA, 1973).

The Ahtna, an Athapaskan-speaking people, are believed to have inhabited the Copper River basin for at least the last thousand years (Workman, 1976). Until the late 19th century, the Ahtna utilized seasonal settlements which were smaller and more numerous than Ahtna villages today. Winter villages were usually located on the Copper River or its tributaries and fairly permanent. Rivers were used for transportation in summer and winter and were the source of the salmon which was stored nearby in caches or pits (Reckord, 1983b). Seasonal camps, used as bases for fishing and hunting, were scattered along the river system and into the mountains up to 50 miles from winter villages (de Laguna and McClellan, 1981; Reckord, 1983b). The fish and game species available to the Ahtna varied somewhat with the particular location of each village (de Laguna and McClellan, 1981).

The semi-nomadic life of the Ahtna was only slightly disrupted by the Russian fur trade, which never established a permanent post in the area. The Ahtna participated to a limited extent in the Russian fur trade by traveling to Russian trading posts in Prince William Sound and Cook Inlet, mainly to obtain iron implements and guns. During this period, the Ahtna derived most of their food through fishing and hunting. Aspects of Russian culture and technology found to be useful were incorporated into Ahtna life, but did not supplant pre-contact Ahtna patterns (Reckord, 1979).

The historical event that most drastically altered life in the Copper River basin was the Yukon River gold rush of 1898, and mining dominated the region until the 1920s. This opened the Copper River region to settlement by prospectors, miners, business entrepreneurs, and government personnel who built roads, trading posts, schools, and mines. Consequences included new transportation corridors, new settlement patterns, and an economy that mixed cash-producing and subsistence activities.

The development of transportation routes in the Copper River basin at the turn of the century is probably most responsible for shaping the area's settlement patterns of today. Trails constructed from Valdez to the Yukon River at Eagle, and between Valdez and Fairbanks, then the hub of interior mining activity (Reckord, 1983b), opened virtually the entire Copper River basin. The region's current paved highways generally follow these routes. Roadhouses, spaced about a day's journey apart, sprang up along these early trails, and were the origin of many of the Copper River basin communities in existence today. Construction of the Copper River and Northwestern Railway between Cordova and Kennicott brought hundreds of people to the Chitina River Valley, and established communities such as Chitina, McCarthy, and Kennicott (Reckord, 1983b).

Native people who had been living in traditional villages and camps up until this time were attracted to these new communities by the availability of imported items of technology and other trade goods. The Ahtna became involved in these communities by providing game and fish to mining camps, freighting supplies, working as laborers, guiding, and selling furs, leather products, and firewood. Epidemics and diseases took a heavy toll on the Ahtna, decreasing their population by an estimated half between 1896 and 1920. This resulted in the loss of much traditional knowledge and further disrupted the traditional social organization (Reckord, 1979).

By 1920, mining activity had abated, local populations declined, the economy generally slowed down, and dependence on fish and game resources increased. Trapping was the predominant economic activity through the 1920s, (Reckord, 1983b). In the 1940s, another period of development occurred in the Copper River basin from construction of the Alaska and Glenn Highways, and the Tok Road (Reckord, 1983b). Airfields were constructed and communications improved. The completion of the highway system facilitated settlement in the Copper River basin, made travel to and from Anchorage easier, and encouraged growth of the region's service industry. This period was the first time since the gold rush that significant numbers of newcomers arrived in the Copper River basin (Reckord, 1979).

In the 1950s, government agents put increased pressure on families to send their children to school. This forced Native families to relocate to communities along the road system, and hampered seasonal movements associated with trapping and other subsistence activities (Reckord, 1979; 1983b). Many families had to cease commercial trapping when they moved from small villages to communities with schools.

After Alaska obtained statehood in 1959, the state became a major employer in the region by providing positions with the schools, police, judicial system, social services, fish and game management, and transportation. The state and federal governments accounted for more than one-third of the employment opportunities available to area residents. This brought a period of greater economic stability to the region, whose economy had been characterized by a boom and bust cycle associated with mining and construction (Reckord, 1979; 1983b). However, government employment did not meet the needs of all those in the region desiring wage employment, and seasonal migration out of the area for employment was common. Some households and individuals left the area permanently.

The Copper River basin experienced another boom period during construction of the Trans-Alaska Pipeline between 1973 and 1977. Labor migration from the region eased, as well as attracting home many of the young people who had left the region for Anchorage in search of work (Reckord, 1979). Like preceding booms, this period of economic activity soon ended. However, a number of employment opportunities in the maintenance of the pipeline and right-of-way remained, as did some of the newcomers.

Despite road access, the Copper River basin remains fairly isolated from the ongoing, rapid growth and development occurring in Anchorage, Fairbanks, the Matanuska-Susitna Valley, and the Kenai Peninsula. Although a few communities have gained significantly in population since 1970, most have grown only slightly or remained stable, and some have declined. The road system makes it relatively easy for area residents to commute to jobs within or outside the region.

B. Subsistence Hunting, Fishing, and Trapping

The state of Alaska, through the Boards of Fisheries and Game, manages subsistence resources on all lands and waters in Alaska, and the Federal Government, through the Federal Subsistence Board, is responsible for assuring a federal subsistence priority on federal public lands and waters. Both state and federal laws define subsistence as the "customary and traditional" use of wild resources for food, clothing,

Table 4.1 Commonly Used Subsistence Resources In The Study Area

Large Mammals Moose Caribou Black bear Brown bear Dall sheep Mountain goat	Berries Blueberry Highbush cranberry Lowbush cranberry Crowberry Red currants Black currants Raspberry Nagoonberry Cloudberry
Small Mammals Porcupine Arctic ground squirrel Lynx Snowshoe hare Beaver Coyote Red fox Marten Marmot Mink Muskrat Weasel Wolverine Wolf	Mushrooms Orange delicious Shaggy mane Orange boletus Meadow mushroom Morel Puff ball
Fish Sockeye (red) salmon King (chinook) salmon Silver (coho) salmon Arctic grayling Whitefish Northern pike Sucker Lake trout Rainbow trout Burbot	Wild Vegetables Sourdock Fireweed Watercress Lambsquarter Chickweed Wild chive Indian potato Sweet vetch Rose hips
Birds Ptarmigan Ruffed grouse Spruce grouse Cananda goose White-fronted goose Mallard Northern Pintail Wigeon Scaup	Trees Spruce Balsam poplar Birch Shrubs Alder Green willow shoots Willow catkins
Source: ADF&G, 1986.	

fuel, transportation, construction, art, crafts, sharing, and customary trade. State and federal laws differ in who qualifies for subsistence uses.

Eligibility for subsistence uses differs in state and federal law. Under federal law, only rural residents qualify for subsistence hunting and fishing on federal public lands. Federal subsistence regulations further restrict eligibility only to those rural residents who have a customary and traditional use of a particular fish stock or game population in a particular area. Some federal public lands remain open to use by residents who are not federally-qualified subsistence users.

Under current state law, all state residents qualify for subsistence fishing and hunting on state and private lands of those fish and wildlife populations where subsistence use occurs. If non-subsistence uses have been eliminated and the regulatory board has determined that the harvestable surplus of a fish or wildlife population is not sufficient to provide a reasonable opportunity for all subsistence uses, the regulatory boards distinguish between subsistence users and determine eligibility on the basis of (1) customary and direct dependence of the subsistence user on the fish or wildlife population for human consumption as a mainstay of livelihood; and (2) the ability of the subsistence user to obtain food if subsistence use if restricted or eliminated (Haynes, 2000).

Like most rural areas in Alaska, subsistence hunting, fishing, and trapping within the study area occurs year-round. Subsistence harvests represent a significant source of social and cultural meaning, food, and income to area residents. Fish and wildlife resources harvested within the study area include: salmon, other fish, big game, small game, furbearers, and birds and eggs (Table 4.1). Within the region, fish (especially salmon), moose, and caribou dominate the harvested resources, accounting for almost 85 percent of the resources harvested (Cuccarese and McMillan, 1988).

In addition to fish and game, vegetation is an important subsistence resource within the study area (Table 4.1). Subsistence use of vegetation includes many types of berries, such as blueberries, lowbush cranberries, and crowberries. Small amounts of sourdock, as well as the roots and seedlings of cottongrass, are also used. The most important subsistence use of vegetation in the study area is the use of wood as fuel for heating and timber for building. Harvests of these resources usually occur near trails, local roads, and major highways within the study area.

1. Customary and Traditional Use Patterns

Historically, Native Alaskans of the Copper River basin area harvested resources during times of predictable migrational movement of their foods (Stratton and Georgette, 1984). Fishing took place from late spring through late summer and focused on salmon. Large mammal harvest occurred from August through the first snows, with sporadic hunting through the winter. Trapping occurred in the winter when fur quality was at its peak, and waterfowl were harvested in the spring and fall (Cuccarese and McMillan, 1988).

Annual subsistence harvests have changed in the region since the area was occupied by hunter-gatherers, reflecting changes in community structure, economics, and population. Resources limitations have resulted in fish and game management by the state and federal governments. Although harvest seasons are more confined, current fish and game regulations closely reflect migratory movements of subsistence resources. Seasonal harvest periods for subsistence resources within the study area are identified on Figure 4.1.

Today, a significant portion of the communities' economy within the study area is tied to subsistence activities. Although both local and non-local (urban) Alaska residents use the area for subsistence purposes, local residents are more dependent on area resources due to poor employment, low income, a higher number of family dependents, and a reluctance to travel outside of their resource area (Stickney and Cunningham, 1979; Fall - Pers. comm., 1999). Non-local residents traveling through area communities represent a significant

economic boost to the region by supporting local businesses that would otherwise not sustain themselves through purely local use.

2. Subsistence Resource Use

Within the study area, two major subsistence regions are identified: the Lake Louise region to the west and the Copper River region to the east. The Copper River region is an important fishing area for local residents. Specific subsistence harvest information on anadromous and freshwater fish in the Copper River portion of the study area is presented in Table 4.2. The Lake Louise Road and Eureka-Nelchina areas are important caribou and moose hunting areas utilized by Natives residing in communities from Chistochina to Chitina (Alaska, 1982). Other game species that are of particular importance to subsistence users in the area include: bears, ducks, geese, grouse, snowshoe hare, and ptarmigan. These two regions are also used extensively by local residents for gathering various berries. Within the Lake Louise region, at least two-thirds of households harvested lake trout, burbot, grayling, and whitefish; with lake trout being the most popular. Moose and caribou were the only big game harvested. Other species harvested included ducks, ptarmigan, and spruce grouse. There was also a small amount of trapping for lynx, fox, and mink (Stratton and Georgette, 1984).

Within the Copper River region, which includes households from Glennallen, Copper Center, Gulkana, Gakona, Kenny Lake, and Upper and Lower Tonsina, fish (sockeye salmon, with king salmon a distant second) were the primary harvest, generally supplemented with moose and caribou. Hares also were taken, as well as a few black bear. Copper Center was the least diversified user of resources: 83 percent fish (salmon), and only 11 percent big game (Stratton and Georgette, 1984). The primary resource harvested by Upper Tonsina area households was sockeye salmon, followed by moose and caribou. Residents of Kenny Lake harvested sockeye salmon and, to a lesser degree, king salmon and moose. Like the other communities, households from Lower Tonsina harvested primarily fish (i.e., sockeye salmon).

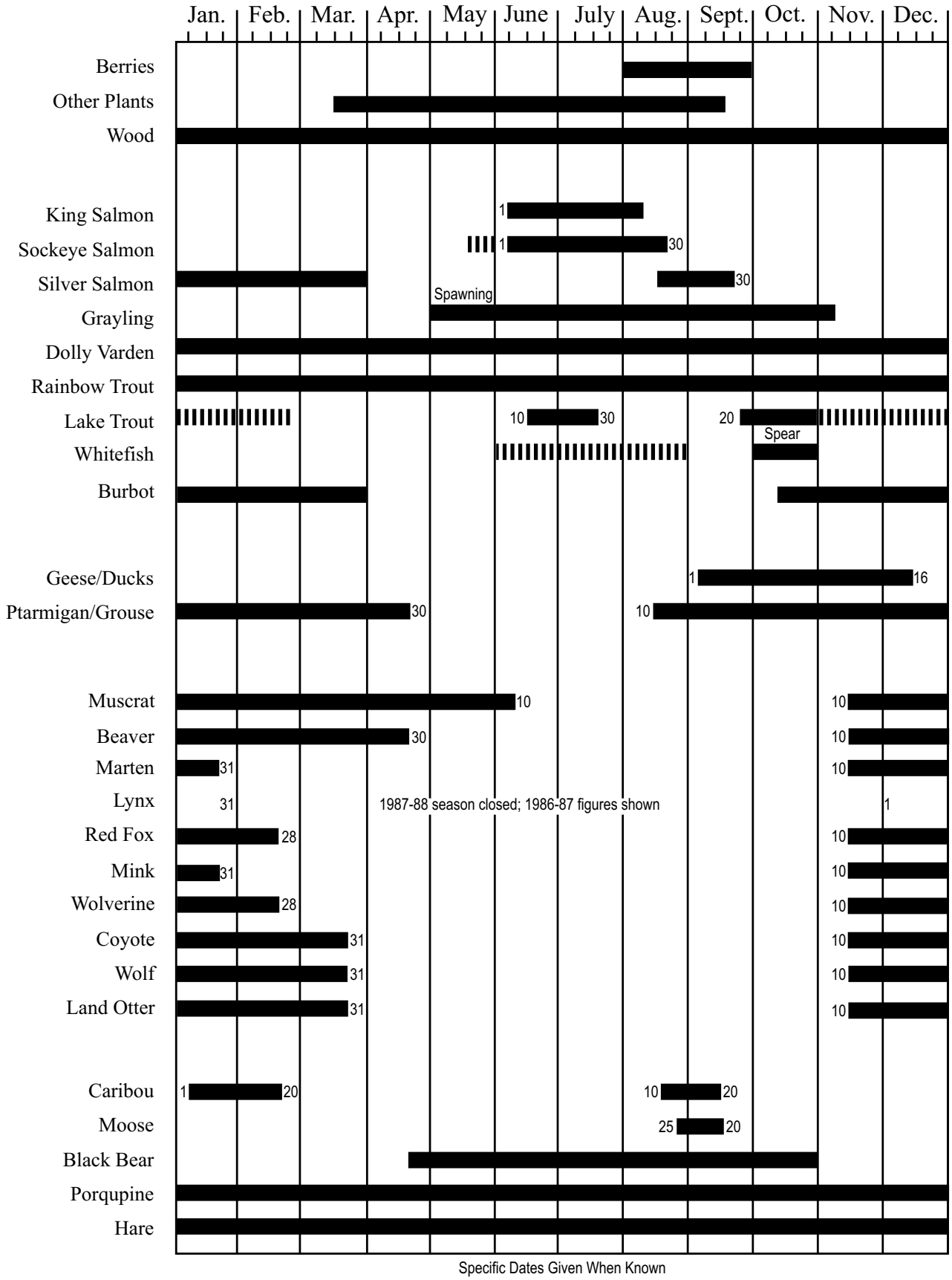
The reasonably foreseeable cumulative effects of the license are discussed in Chapter Five.

C. Sport and Commercial Hunting and Fishing

Sport hunting and fishing occurs throughout much of this region, and constitutes the primary use of fish and wildlife resources within the Copper River portion of the study area. This is because of the wide variety of fish and wildlife resources in the Copper River basin, and the close proximity of this area to a large segment of Alaska's population. Hunting and fishing within the study area is controlled by the Alaska Department of Fish and Game (ADF&G). ADF&G has established 26 different game management units (GMU) throughout the state, for which harvest information and records are maintained. Since the study area encompasses only parts of GMUs 11 and 13 (Figure 4-2), it is not possible to determine the exact number of animals harvested within the area.

Caribou from the Nelchina Herd are harvested in the study area, and caribou taken from the Lake Louise area often represent a large percentage of the total annual harvest. Caribou harvest information for GMU 13 (by subunit), encompassing much of the study area, is presented in Table 4.3. The annual moose harvest from GMU 13 is typically one of the largest in the state (Table 4.4). Black and brown bears are also harvested from the study area.

FIGURE 4.1 Seasonal Subsistence Harvest, Copper River Basin. Solid line indicates time when harvest takes place. Broken line indicates occasional harvest effort. (Locally harvested resources only.) (Cuccarese & McMillan, 1988.)



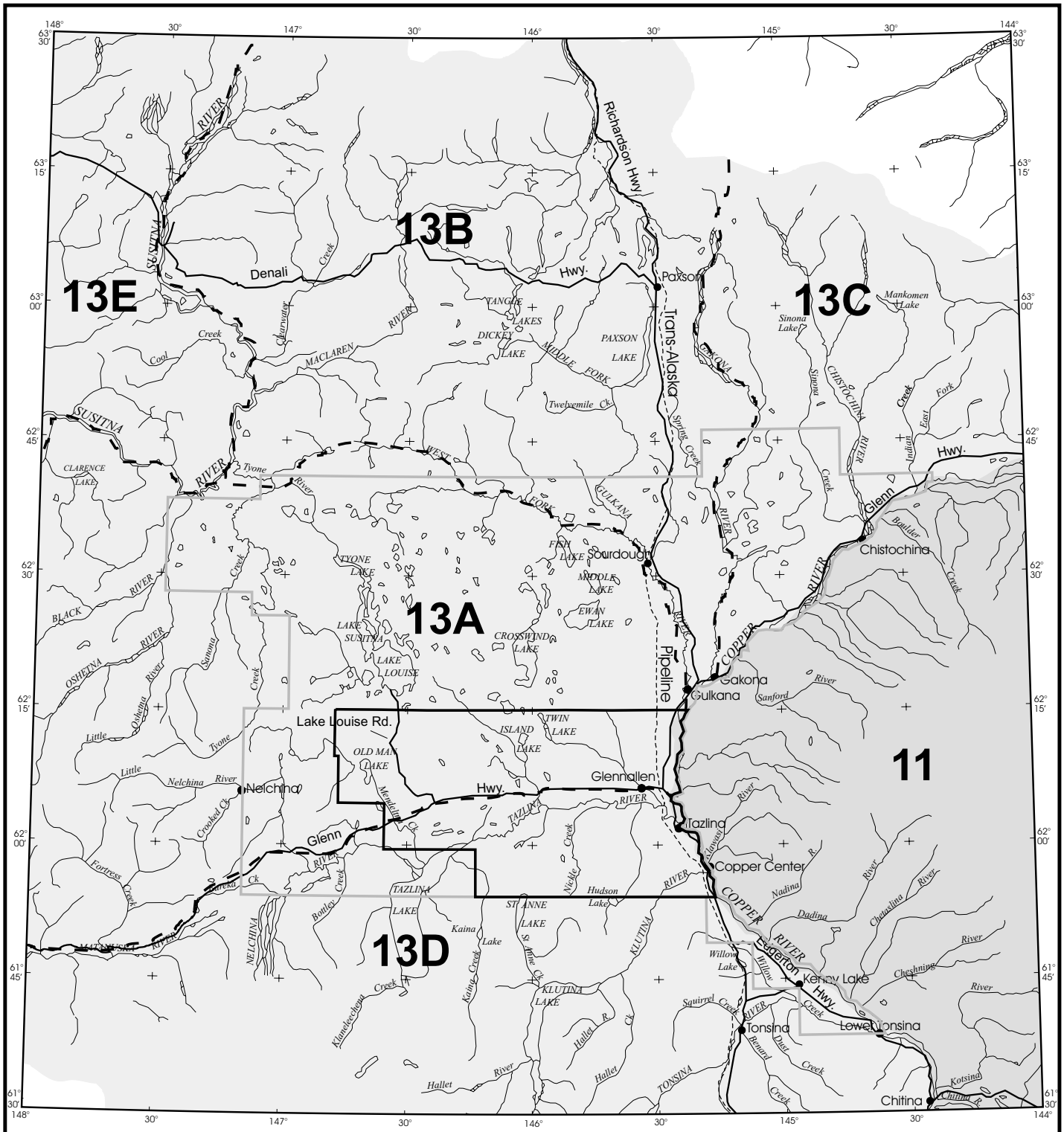


FIGURE 4.2 State Game Management Units

Study Area =

Game Management Unit =

Proposed License Area =

Subunit Boundaries =

Table 4.2 Summary of Salmon Permits and Catch for the Upper Copper River Subsistence and Personal Use Fisheries, 1993-1997

Year	Category	Permits Issued			Reported catch[2]			Reported catch by Species			Total Salmon catch	
		Dip Net	Fish Wheel	Total	Dip net[b]	Fish Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1993	s	14	759	773	252	49,792	50,044	1,308	48,582	70	49,960	54,370
	p	7,914	NA	7,914	93,747	NA	93,747	2,729	89,629	1,358	93,716	97,767
	Total	7,928	759	8,687	93,999	49,792	143,791	4,037	138,211	1,428	143,676	152,137
1994	s	267	703	970	6,154	58,504	64,658	1,827	62,717	55	64,659	69,662
	p	7,061	NA	7,061	95,903	NA	95,903	3,596	90,332	1,903	95,831	99,822
	Total	7,328	703	8,031	102,057	58,504	160,561	5,423	153,049	1,958	160,430	169,484
1995	s	191	665	856	3,626	47,481	51,107	1,740	48,415	821	50,976	55,329
	p	6,760	NA	6,760	85,997	NA	85,997	4,568	76,670	4,726	85,964	88,617
	Total	6,951	667	7,618	89,623	47,481	137,104	6,308	125,085	5,547	136,940	143,946
1996	s	219	631	850	5,757	45,086	50,843	1,388	48,747	522	50,657	54,091
	p	7,198	NA	7,198	99,511	NA	99,511	3,493	92,590	3,295	99,378	101,972
	Total	7,417	631	8,048	105,268	45,086	150,354	4,881	141,337	3,817	150,035	156,063
1997	s	268	847	1,115	7,964	72,166	80,130	2,408	77,388	177	79,973	86,270
	p	9,086	NA	9,086	151,387	NA	151,387	5,336	145,881	155	151,372	154,467
	Total	9,372	847	10,219	159,351	72,166	231,517	7,744	223,269	332	231,345	240,747

Notes:
a = Includes all reported species
b = Subsistence dip net catch estimated
p = Personal use
s = Subsistence

Source: Morstad et al., 1998

Table 4.3 Caribou Harvest in Portions of Game Management Unit 13, 1990-1994[1]

Year	Game Management Subunit					
	13A		13B		13D	
	Caribou Harvested	Number of Hunters	Caribou Harvested	Number of Hunters	Caribou Harvested	Number of Hunters
1990	936	2,010	17	94	12	28
1991	749	928	29	57	47	53
1992	768	1,402	39	74	29	55
1993	1,096	1,856	53	104	17	34
1994	764	1,700	50	115	11	36

Notes: 1 = Total harvest for all of Unit 13 for state and federal hunts in 1997-98 was 3,862 animals (reported in Hicks, 1998a).
Sources: ADF&G, 1992; 1993; 1994; 1995; 1996

Table 4.4 Moose Harvest in Portions of Game Management Unit 13, 1990-1994[1]

Year	Game Management Subunit					
	13A		13C		13D	
	Moose Harvested	Number of Hunters	Moose Harvested	Number of Hunters	Moose Harvested	Number of Hunters
1990	79	633	63	272	71	320
1991	120	589	90	261	65	272
1992	132	674	77	259	64	352
1993	538	2,072	147	371	98	492
1994	306	2,087	131	414	70	367

Notes: 1 = Preliminary estimates for total moose harvest in all of Unit 13 for 1996 and 1997 are 1,027 and 937 animals, respectively (as reported in Hicks, 1998b).
Sources: ADF&G, 1992; 1993; 1994; 1995; 1996

Table 4.5 Commercial Salmon Catch by Species in the Copper River District, 1993-1997

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,061	1,152,220	677,633	12,079	19,055	1,908,048
1995	65,675	1,271,822	542,658	19,809	56,100	1,956,064
1996	55,646	2,356,365	193,042	6,372	25,533	2,636,958
1997	51,273	2,955,431	18,656	8,483	2,465	3,036,308
Mean	**49,876**	**1,826,814**	**342,692**	**11,264**	**23,231**	**2,253,878**

Source: Morstad et al., 1998

Salmon from the Copper River basin support a significant commercial fishery in the waters of the Gulf of Alaska. While the contributions of the salmon production occurring within the study area, or in the upper reaches of the Copper River drainage, are not known, the value of the Copper River fishery to the state's economy is estimated to be substantial (Morstad et al., 1998). Commercial salmon harvest in the Copper River District from 1993-1997 is provided in Table 4.5.

Table 4.6 Sport Fish Harvest and Effort Data, 1993-1997

Area	Year	Angler Days Fished	Fish Species								
			Chinook Salmon	Sockeye Salmon	Coho Salmon	Lake Trout	Grayling	Burbot	Whitefish	Dolly Varden	Rainbow Trout
Lake Louise	1993	10,316	—	—	—	1,316	994	—	183	—	—
	1994	9,976	—	—	—	1,463	1,239	—	279	—	—
	1995	9,352	—	—	—	946	1,040	—	444	—	—
	1996	7,101	—	—	—	562	570	—	88	—	—
	1997	4,712	—	—	—	498	242	—	—	—	—
Susitna Lake	1993	2,651	—	—	—	669	502	54	218	—	—
	1994	3,510	—	—	—	426	742	558	271	—	—
	1995	4,241	—	—	—	200	627	103	27	—	—
	1996	2,971	—	—	—	324	149	195	35	—	—
	1997	916	—	—	—	44	118	159	—	—	—
Crosswind Lake	1993	1,358	—	—	—	311	215	225	78	—	—
	1994	1,649	—	9	—	429	514	317	—	—	—
	1995	1,719	—	—	—	94	87	271	—	—	—
	1996	1,622	—	485	—	295	84	100	97	—	—
	1997	1,150	—	25	—	81	230	141	—	—	—
Gulkana River (Sourdough to Highway)	1993	6,590	1,866	547	—	—	114	—	—	—	—
	1994	11,662	2,071	884	—	—	368	—	—	—	—
	1995	17,185	2,250	920	—	—	451	7	9	—	—
	1996	19,545	2,521	5,841	—	—	179	27	27	—	—
	1997	14,251	2,737	2,939	—	—	424	—	—	—	—
Klutina River	1993[a]	7,714	1,955	1,350	—	28	532	—	25	1,661	68
	1994	10,285	2,179	3,052	—	74	363	—	10	1,046	8
	1995	14,083	2,466	2,455	—	44	250	—	27	586	37
	1996	12,128	2,407	4,666	—	19	149	—	35	708	—
	1997	15,040	3,581	5,988	—	18	113	—	21	362	10
Tonsina River	1993	2,158	172	188	38	51	610	—	—	523	20
	1994	1,893	349	66	91	—	128	—	—	197	—
	1995	3,451	539	105	37	—	226	—	—	478	28
	1996	2,226	283	54	70	—	122	—	—	360	24
	1997	1,261	145	45	—	—	—	—	—	106	—

Area	Year	Angler Days Fished	Fish Species								
			Chinook Salmon	Sockeye Salmon	Coho Salmon	Lake Trout	Grayling	Burbot	Whitefish	Dolly Varden	Rainbow Trout
Mendeltna Creek	1993	1,580	—	—	—	—	867	—	—	—	—
	1994	1,323	—	—	—	—	906	—	—	—	—
	1995	1,738	—	—	—	—	1,041	—	—	44	—
	1996	760	—	—	—	—	439	—	—	—	—
	1997	1,014	—	—	—	—	337	—	—	—	—

Notes: [a] = Reported harvest also included 83 coho salmon
— = None reported
Source: Mills, 1994; Howe et al., 1995, 1996, 1997, 1998

Thousands of anglers fish the lakes and streams within and near the study area. In addition, the Lake Louise-Susitna Lake system is one of the most popular fishing areas in the vicinity. Grayling and lake trout are the primary species caught during the open water season, while burbot are harvested during the winter. Sport fish harvest and effort data from 1993-1997 for the Lake Louise-Susitna Lake system and nearby Crosswind Lake are provided in Table 4.6. The Gulkana, Klutina, and Tonsina Rivers, plus Mendeltna Creek, are popular fishing rivers (Table 4.6). Approximately 10 to 30 groups of fishermen annually fly into Jans Lake to catch both coho salmon and rainbow trout (Alaska, 1982). Sport fishing effort for Dolly Varden and whitefish is generally low.

Trapping of furbearers and marketing of pelts is the major commercial use of wildlife populations within the study area. Results from trapper questionnaires indicated that 233 beaver, 44 wolverine, 200 lynx, and 37 land otter were trapped in GMU 13 during the 1996-97 season (Hicks, 1997). Other commonly harvested species include wolf, marten, mink, and muskrat.

Local hunting and fishing guide services provide a significant income to local residents. In 1999, 80 large game hunting guides were licensed within GMU 13 by ADF&G (Rockidero - Pers. Comm., 1999), and 100 fishing guides were registered with the Bureau of Land Management (BLM) for federal lands within the region (Dean - Pers. Comm., 1999).

D. Recreation and Tourism

Alaska's Copper River basin offers a wide range of year-round outdoor recreational activities and opportunities that are considered extremely valuable and important to local residents and visitors to the area. Local residents use the area for recreation, and income is provided from tourism activities based on area recreational opportunities. Recreational opportunities occur throughout the study area and largely involve dispersed recreation. Abundant rivers, streams, lakes, valleys, mountains, and numerous trails are actively used for hiking, dog mushing, fishing, hunting, sightseeing, cross-country skiing, snowmobiling, rafting, boating, camping, and other private and commercial recreational activities. The majority of the recreation and tourism activity within the study area occurs during the summer. However, snowmobiling and cross-country skiing occur throughout the area during the winter.

Three agencies manage the recreational resources within the Copper River basin, the state Division of Parks and Recreation, the BLM, and the Alaska Department of Transportation and Public Facilities (ADOT&PF). Ten state parks are located in or near the study area; the most popular being the Lake Louise and Little Nelchina State Recreation Areas. The BLM currently manages six recreation sites, including sites at Paxon Lake, Tangle Lake, and Sourdough Creek, and the Middle Fork and West Fork of the Gulkana River as Wild and Scenic Rivers. ADOT&PF facilities generally consist of roadside rest areas and litter barrel stops. In addition, the Wrangell-St. Elias National Park and Preserve is located directly east, of the study area. Although some of the recreational resource areas are not within the boundary of the study area, recreationists must travel through the area when going to or from many of them. Tourism within the Copper River basin is increasing rapidly, the total number of visitors is slightly higher than at Denali National Park, the strongest single visitation attraction in the state (Willits and Martin, 1986).

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